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AUTHOR Oakes, Jeannie; And Others
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ABSTRACT

A curriculum project is described which illustrates the use of collaborative inquiry, a cooperative effort between university researchers and educational practitioners. Four tenets of collaborative inquiry are outlined. (1) Researchers and school practitioners work together on all phases of the effort. (2) The effort is focused on real world as well as theoretical problems. (3) Both groups gain in understanding and mutual respect. (4) The effort is consistently concerned with both research and development as well as implementation issues. The Curriculum, Computers, and Collaboration Project, which is described, developed microcomputer courseware for language arts and mathematics instruction for students 10-14 years old. The project team consisted of 11 teachers from elementary, middle, and high schools, and four staff from The Laboratory in School and Community Education of the Graduate School of Education at the University of California, Los Angeles. The project development is described, and the ways in which it conformed to the collaborative paradigm are discussed. Finally, participants' reactions are summarized and 12 concluding thought-provoking dilemmas are listed. (GDC)

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COLLABORATIVE INQUIRY:

A CONGENIAL PARADIGM IN A CANTANKEROUS WORLD

Jeannie Oakes
Sharon E. Hare
Kenneth A. Sirotnik

Laboratory in School and Community Education
Graduate School of Education
University of California, Los Angeles

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of the American Educational Research Association
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COLLABORATIVE INQUIRY

A CONGENIAL PARADIGM IN A CANTANKEROUS WORLD

Bringing about cooperation among school practitioners and university researchers is no easy task. The cooperative attitudes and behaviors inherent in the collaborative paradigm diverge from the typical work modes of schools and universities. Further, they run counter to the norms of competition, individual autonomy, and hierarchical organizational authority that pervade all our social institutions. Hence our title. The collaborative model is a friendly, trusting, congenial one. The world, we find, is not always so.

The contradictions between the collaborative paradigm and the "real" world are powerful enough to seriously impair the efforts of even enthusiastic and well-intentioned collaborators. This paper illustrates and analyzes a recent experience in a collaborative curriculum inquiry. Here we describe the collaborative paradigm and our particular version of it, "collaborative inquiry." The dilemmas that arose in the course of the inquiry are described in terms of more fundamental contradictions between the paradigm and its real world context.

WHY COLLABORATE?

Careful investigations of failed attempts at educational change following a Research, Development and Diffusion approach indicate that the failure can be attributed in part to having neglected to consider or include practitioners in any but a consuming role and the failure to consider the powerful conservative force of school culture (Sarason, 1982; Goodlad, 1975; Berman and McLaughlin, 1975). The collaborative model has promise partly because it addresses these deficiencies. In

collaborative research and development efforts, practitioners are central; they often participate from the initial conceptualization through the implementation phases of the work. The school culture itself is the context for the collaborative effort. Of course, there is a value operative here. It says that once research has identified, accurately described, or added to the understanding of some educational phenomena, it's very nice if that knowledge can be put to some good use.

But collaborative research has a potential beyond that of merely including practitioners in the attempt to refine and install the research community's "good ideas". Collaborative efforts serve to inform theory as well as practice. The complexity of real school settings and the multiplicity of perspectives of practitioners and students can be neither ignored nor analyzed simplistically when they are an integral part of the theory-making process. In collaborative research, analyzing what now exists and generating directions for improvement are shaped and enriched by the exigencies of real life in schools.

THE COLLABORATIVE PARADIGM

The collaborative research model is not a new one. Its roots can be traced to the social psychological research of Lewin and Lippet in the 40's, to its application in business management, and to the development of social science "action research" by Collier (1945) and others. (See Corey, 1953, for specific educational applications). During the last decade, several collaborative educational research efforts have been conducted. (See for example, Fisher and Berliner, 1979; Griffin, Lieberman, and Noto, 1982; Huling, Trang, and Correll, 1981; Oja and Pine, 1983; Ross, 1984; and Tikunoff, Ward, and Griffin, 1979.) Not surprisingly, operational definitions of collaborative

research vary among these efforts. However, four common characteristics have been identified by Ward and Tikunoff in their 1982 review of this work. They are:

1) Researchers and school practitioners work together on all phases of the effort;

2) The collaborative effort is focused on "real world" as well as theoretical problems;

3) Both groups gain in understanding and mutual respect;

4) The effort is concerned with both research and development/implementation issues throughout.

TOWARD COLLABORATIVE INQUIRY

Most recent collaborative efforts seem to have simply added the participation of practitioners without questioning traditional assumptions and methods of research and development. While the perspective brought by practitioners to the process seems to have been clearly valued, usually no significant alteration of the research process itself occurred as a result of the collaboration.

The inclusion of practitioners, however, makes possible more fundamental changes in the approach to investigating educational problems. Such changes can be accomplished, we think, by extending and elaborating the collaborative research and development model beyond the four characteristics identified above. Specifically, we suggest pushing the collaborative paradigm toward a democratic approach that is equitable and consensual rather than merely participatory. We call this mode collaborative inquiry. "Collaborative inquiry" seems more to the point of capturing the real combined strengths of the two sets of skills and perspectives of researcher and practitioner. It prepares the way for a pradigm that has two collaborators working toward the same end

rather than collaborators "helping" one another achieve goals slightly unique to each. Since, if an imbalance in the collaborative relationships were to exist, it would likely be "in favor" of the researcher's greater status and license to alter the commonplace for experimental purposes, a first step in collaborative inquiry would be to push and extend the practitioner's actual involvement to the point of equal and genuinely collegial participation.

Two specific ways in which the collaborative research paradigm can be pushed toward collaborative inquiry are pertinent to our recent experience. The first extends the nature of practitioner participation to enhance its democratic character. This kind of extension was made in the Interactive Research and Development on Teaching project of Tikunoff, Ward, and Griffin (1979) where the working together of researchers and practitioners was defined as follows:

> . . . collaborations is viewed as teachers, researchers, and trainer developers both working with parity and assuming equal responsibility to identify, inquire into, and resolve the problems/concerns of classroom teachers. Such collaboration recognized and utilizes the unique insights and skills provided by each participant while, at the same time, demanding that no set of capabilities is assigned a superior status.

So defined, collaboration includes the conditions of equality of responsibility and equality of status. Decision-making at all stages of the work becomes an appropriate collaborative task. Diverse contributions are not only considered important, they become equally important. Diverse opinions are not simply respected, they have equal influence in decision-making.

A second way the model can be pushed beyond the basic elements of collaborative research is in the choice of methodology. While no one

kind of methodology characterizes collaborative research and development as a whole, most reported work has been conducted following traditional research methods. That is, the research side of projects has proceeded as if only researchers were involved. But we suggest that research methodology can be reformulated into one that is more in tune with the notion of collaborative inquiry. In traditional collaborative designs, for example, participant decision-making occurs within the constraints of an established agenda of research hypotheses. In collaborative inquiry, the "agenda" of questions and concerns often changes as different levels of working consensus are reached by all involved.

Also subject to reconsideration are the methods by which participants come to some understanding about what occurred in the project and communicate this understanding to others. By virtue of the collaborative inquiry approach itself, these methods can be expanded to include self-conscious efforts to continually document the context and processes of the project and the orientations (e.g. sentiments and opinions) of the participants. This documentation can include both quantitative and qualitative methods for collecting and analyzing information as well as the interpretive and reflective methods for making sense out of it. Among the procedures used are field notes, survey interviews and questionnaires, meeting minutes, anecdotal records, work samples, and the like.

Pushing the collaborative research and development paradigm in these ways enhances both its democratic character and, more importantly, its likelihood for a rich understanding of the subject of inquiry. It decreases the probability that prior assumptions on the part of researchers, practitioners, or even the newly formed collaborative team

will shape irrevocably questions for consideration or decisions about procedures to follow.

A REAL WORLD EXAMPLE

A Description of the Project

The Curriculum, Computers and Collaboration (C.C.C.) Project -- an inquiry into how curricular innovation can be encouraged and supported in schools -- was launched in July 1983 by the Laboratory in School and Community Education, a unit of the Graduate School of Education at the University of California Los Angeles, in conjunction with two public school districts. Three questions prompted the inquiry: First, will participation in a collaborative development process change teachers conceptualizations of curriculum? Second, based on conceptual work and practical experience, can the collaborative team develop curricula that integrate microcomputers into ongoing classroom teaching and learning? Third, can the team design the microcomputer courseware elements of this curriculum and implement their use in project schools? The scope of the investigation was limited to mathematics and language arts curriculum for students 10-14 years old.

The project team consisted of fifteen individuals from four educational units. The initiating group was the staff of the Laboratory at UCLA. The remaining three groups were from schools: 1) a team of five upper elementary teachers; 2) three middle school language arts teachers; and 3) three senior high school mathematics teachers.

The entire team's initial response to the idea of working collaboratively was an enthusiastic one. The Laboratory staff, directed by John I. Goodlad, were strongly influenced by his earlier work on school change and their recent experience on the Study of Schooling project

(see Goodlad, 1975; 1983). The schools in the project had been, for three years, members of the PARTNERSHIP, a group of Southern California school districts and community colleges that had linked with the Laboratory for school improvement. Recent collaborative research reported in the literature appeared to be nicely compatible with these experiences. Given the shared orientation to collaboration and commitment to the local school as both the focus for change and the locus of control over the change process itself, the project team was interested in pushing collaborative inquiry as far in this direction as possible.

An overview of the research and development activities for the project term July 1983 to June 1984 can be divided into four general phases. The first included intensive conceptualization--planning, reading, thinking and discussion. The curriculum ideas that emerged and project views on the role of computers in education were later elaborated into conceptual papers (see Lawrence, 1984; Johnson, 1984; Oakes and Schneider, 1984; and Sirotnik, in press). During the second phase each of the teachers developed lessons expanding on the team's conceptual work, "tried out" the lessons with students, and evaluated their effectiveness. One dimension of the evaluation was to envision how certain elements of the lessons could be adapted for computer courseware. In the third phase staff participated in training sessions on an authoring system in order to understand the technological constraints and considerations in developing computer materials and to gain facility using the authoring system itself. Finally, the fourth phase of the project was devoted to design, storyboarding, and programming components of software for mathematics and language arts.

(Summary reports on the CCC project can be found in Oakes, 1984 and Sirotnik, Goldenberg & Oakes, 1985.)

The Project and the Paradigm

From the initial conceptualization of the project, the Laboratory research team had rather clear ideas about how they thought collaboration should proceed. These ideas included the features of the traditional collaborative research and development model plus the extensions towards collaborative inquiry. The Laboratory staff presented their conceptions of egalitarian participation and the inquiry process to other team members at the outset of the project, and there seemed to be a consensus among the team endorsing the collaborative inquiry model. The intent of the group was to operate on the assumptions underlying this mode.

In general the CCC Project conformed to the four characteristics of collaborative research and development outlined by Ward and Tikunoff. Over the course of the project term researchers and school practitioners worked together (characteristic number one) both at the Laboratory and at school sites. While both researchers and teachers contributed to curriculum development, courseware implementation, and design of evaluation devices, the major responsibility for data collection was assumed by the researchers and the greater share of lesson planning was carried by the teachers.

The joint focus on "real world" and theoretical problems (characteristic number two) as well as the ongoing concern with both research and development/implementation issues (characteristic number four) was kept alive by the vested interests of the two groups. Variations in definitions of research problems reflect the different interests that

researchers and teachers brought to the project. The overriding research problem, that of inquiry into the educational change process, was defined by Laboratory research staff while seeking funding. The specific question in the minds of the researchers was what happens when a collaborative approach to curricular change is applied to technological innovations. Teachers, while not unaware of these conceptions, were more likely to frame the research problem in terms of how to directly improve teaching and learning in their classrooms and what role computer courseware can play in this improvement.

Mutual respect and esteem for diverse contributions (characteristic number three) emerged over time. Different phases of the project brought out different people's strengths. For example, some of the staff piloted the conceptual work whereas others took the lead in computer programming. The mutual respect for the wealth of resources within the team was demonstrated by the teams's decision not to use outside consultants included in the original budget. Instead, we sought the expertise of "specialists" drawn from within the project--fellow team members who understood our needs. Staff taught and learned from each other, and in doing so strengthened the networks that held the collaborative effort together.

The project attempted to push the collaborative R and D model toward collaborative inquiry in three ways. First, the concept of all participants having equal responsibility for the project led the Laboratory staff to proceed with a notion of shared leadership. While the project needed someone to coordinate activities, that person was not to be viewed as having more power than any other project member. The term "chief worrier" was used to describe the role of the coordinator of

a collaborative project. Essentially, this job was conceived of as managing the initial organization of the project team and, throughout the year, making information available to it. The duties also involved handling most of the logistics of project work, including fiscal matters and ongoing communication with Laboratory, school district and site administrators, and the funding agency. The making and carrying out of decisions regarding the project was seen as the responsibility of the entire team. The ongoing coordination of the project was accomplished in weekly meetings of the Laboratory staff and a teacher from each school site. These "site coordinators" were in daily contact with the others at their schools. They relayed information and opinions between the Laboratory and the schools sites. The intention in this approach, of course, was to create a flat, deliberately non-hierarchical power structure in the project.

The second way the collaborative model was extended was that equal valuing of the diverse contributions of group members became a project goal. The project team often articulated the importance of all participants feeling equal ownership of the project, defining their own goals, and evaluating their own contributions.

A third way that the project attempted to approach the ideal of collaborative inquiry was in the choice of methodology. Using an exploratory research methodology (hypothesis-generating, rather than hypothesis-confirming) seemed to be most appropriate to the project's goal of allowing the events and meanings found in the world of practice an important role in the shaping of theory. We believed that specific and relevant research questions could best arise in the context of the collaborative group. Similarly, we were convinced that decisions about

what kind of data would ultimately shed useful light on these questions could best be made during the course of the work.

As a result, the team began its work as participant-observers. Data were collected by the research members of the team through extensive observation of groups working at sites, at meetings of the site coordinators, and at meetings of the entire staff. Teachers responded to open-ended questionnaires three times during the project year. The questionnaires were designed in response to specific questions and issues that arose. The final questionnaire asked teachers to critique the project. The teachers also kept logs of their project work during the fourth phase of the project. Documents produced by the project--conceptual papers, curriculum matrices, evaluation plans, etc. contain data about the curricular decisions that were made by the group. These data were content analyzed for themes and dilemmas that characterized the inquiry.

Reactions to the Project

Over the course of the project, most staff expressed positive responses about participating in collaborative inquiry. All but one of the project teachers identified ways that their ongoing classroom work had been enhanced. After the curriculum conceptualization phase, project teachers tended to focus on developing higher level cognitive processes and to emphasize integrated learning activities that made use of a variety of media and built on student experience. The collegial relationships were also valued. One teacher wrote, "For the first time in my career, I feel that what I am doing is important. I have a chance to think and discuss pedagogical issues".

Many positive comments related specifically to the collaborative nature of the project. The following are illustrative.

"The bringing together of the three schools and the University has been a stimulating experience for all four entities."

"The sharing of pleasures and woes has been helpful in the development of a perspective that must exist for change to occur."

"The friendly supportive professional contact is invaluable . . . . Having it is revivifying [sic] and morale building."

"People from different sites had different strengths . . . we seem to have found a person for each job that needs to be done."

"It provided a group of well-rounded individuals who have greatly added to the project as a unified effort."

"Everyone respects one another and that has improved over the year."

Moreover, the work going on at schools also informed the research process and shaped the kinds of questions posed. Through the collaboration, project researchers gained insight into the experience of teachers becoming courseware authors and increased their appreciation for the press of the school culture especially when confronted with innovation (see for example Oakes, 1984; Sirotnik, Goldenberg, and Oakes, 1985).

The project, however, was anything but problem-free. Collaboration was not endorsed with equal enthusiasm by all. The weaknesses of collaboration as reported by some teachers in their final project evaluations included:

- lack of adequate leadership
- no clear division of labor
- jealousies between people at different sites
- lack of communication
- separation and lack of collaboration
- unclear project goals directions and expectations

The following teacher responses provide examples of these concerns.

"It was clear from the beginning that decisions would be made by the group. This occasionally gave the impression of foundering. Most of us were looking for direction at the time."

"No specific guidelines [were given] as to what my tasks should be on a monthly basis."

"The project should have been started later. Then prospective members could have been told exactly what would be expected of them."

"Jealousies were created or assumed between people of different school sites."

"The people chosen from other school sites were in some cases weak and of limited usefulness."

"A lack of clear understanding of the project at the beginning made it difficult for people to interact."

"Not a lot of collaboration among the site coordinators."

"A less collegial atmosphere than what I had expected."

"Feedback from team members and site coordinators was not well received so it was easier not to say anything."

"Tendency of women to be groupish makes collaboration difficult."

DILEMMAS

Setting these comments on the part of project teachers next to the explicit attempts to create democratic leadership, equal valuing, and an exploratory inquiry mode, one must wonder about the extent to which the project reached these goals. Furthermore, such comments are merely the tip of the iceberg of evidence challenging the fit between the project and what we have called collaborative inquiry. In other words, although throughout the project the idea of collaborating remained appealing, the actual experience of collaboration proved to be considerably more difficult than any of us had anticipated. And those areas where we attempted to push the paradigm, especially toward enhanced democratic participation, seemed to present the greatest obstacles.

The variety of factors that seemed to pull the reality of participation away from the democratic ideal can be divided into a couple of related categories. The first consists of inequalities in the actual circumstances of individuals involved in the project, and the second deals with conflicts in the process itself. From these two categories of issues, a set of dilemmas endemic to the collaborative inquiry paradigm appear to emerge.

Circumstantial Inequalities

Contrary to the collaborative ideal of participants having parity in a flat organizational structure, project team members were unequal in significant ways. First, in terms of traditional measures of professional value and status--salary and title--project staff positions ranged from research assistants with low hourly wages to senior researchers commanding high level salaries, with school teachers somewhere in the middle. Recruitment procedures at the four units led to differences in perceived status. At one school, project staff were interviewed in a competitive screening process. At another, with their consent, they were appointed by the school principal. At the third, while some chose to participate, others were required. In short, this was not a self-selecting team in which members chose each other on the basis of mutual respect. Time assigned to the project was also unqual. Official project appointments included full-time, half-time and one-fifth time commitments.

In certain respects, the researchers had a greater vested interest in the project in that their positions depended in a large part on project funding. Teachers, on the other hand, had their school jobs whether or not the project was refunded. This particular inequality was

heightened by the sometimes precarious relationship between the project and the funding agency. The perceived threat of funding withdrawal cast the project in the mold of an organization founded on a tentative resource base. Under such conditions, the differences in dedication and efforts of individuals became extremely important. In fact, the idea of "commitment" became an important element in assessing the value of team members' project involvement. This caused considerable stress, evidenced both in frustration for individuals and in tension during group interaction, conditions we shall return to later.

In short, the factors described above as well as the usual array of political histories at sites and personality traits militated against complete realization of the collaborative ideals.

Conflicts in Process

A second kind of difficulty arose in the process of putting the collaborative ideals into practice. While the group could agree on the desirability of democratic structures and open-ended processes, there apparently were substantial differences in individual perceptions of how team members should behave within such a structure. These differences surfaced in the course of project activities and seemed to take the form of sometimes quite negative interpretations and judgements of others' motives, skills, attitudes, and actions.

One example should help illustrate the nature of these conflicts. At the end of the conceptual work on curriculum, the group agreed that a reasonable next step would be for the teachers to develop lessons for their classes based on ideal curricular elements. The lessons would provide examples of how the curricular abstractions they had derived could be implemented in the classroom. As such they would give the

teachers a chance to try out and to evaluate the application of the concepts in actual practice. Further, the lessons would be useful as illustrations in the two subject area concept papers and as models for the computer courseware the group would develop later in the year.

The teachers, often conferring in small groups, worked at their sites to conceptualize and write the lessons, which they subsequently tried out in the classroom and evaluated. As a guide for these assessments, the project coordinator had designed an evaluation form. The site coordinators and the Laboratory staff together decided to have this form included with lesson documentation. Finally, the research assistants compiled the lessons and accompanying documentation and distributed them to each site in sets of notebooks to be used as appendix-like complements to the concept papers and for reference as the project proceeded.

In an attempt to honor the teachers' contributions and respect their expertise, the researcher staff decided to encourage discussion about lessons among the group, but to avoid making value judgements about them. Several of the project teachers later reported that they saw this decision as a major error. Some noted that bad feelings resulted from not having evaluations of the lessons made by the researchers. Some felt the Laboratory staff abandoned its responsibility to give feedback and support to the group and withheld expertise and information. One staff member commented, "We had turned in lessons and got no feedback, heard nothing. Were the lessons long enough? Content appropriate? Well conceived?" Another staff member requested that in the future on a monthly basis the project coordinator give team members feedback and reinforcement about what they had

done..."telling them it was well received." Another suggested that the Laboratory staff should "provide feedback on the quality of each individual's work." And still others thought the fundor or school administrators should provide feedback to teachers. For these teachers, self-evaluation and discussions of the lessons among team members were not enough. Such negative perceptions had long-term consequences -- adverse impact on subsequent work and group morale. However, not all teachers shared this frustration. One disagreed, "I don't understand why people might feel there is a lack of praise, since I feel very supported--like I am on sabbatical. Project staff are very supportive."

Of course, the teachers were not alone in their frustration. Some of the Laboratory staff were equally frustrated by what they saw as a dependence upon external authority that was counterproductive in a collaborative inquiry. In retrospect, and not surprisingly, the difficulty most likely was on both sides. The teachers, probably conditioned by their experiences of being relatively powerless in the hierarchical structure of schooling, erred in the direction of silence. They did not risk confronting the entire team with their feelings of being unsupported until long after damage was done. The researchers erred in the direction of arrogance. Concerned about not imposing their values about what constitutes good lessons, the research staff imposed instead their view of what constitutes collaborative "leadership." With confidence in their conception of collaboration, they made the decision about feedback for the entire group.

This example illustrates some clusters of conflicting perceptions, specifically those related to project structure and leadership, information control, to motivation, and responsibility and ambiguity.

What is evident is the kind of difficulty we hinted at as we began this paper--a difficulty stemming from the incongruence of collaborative behavior with the usual behavioral modes of both school practitioners and university researchers.

In short, one important way the group diverged was how individuals translated the abstraction of collabortion into practice. "Equal valuing" and "ownership" had different meanings among individuals. These differences did not take the form of intellectual disagreements about how the collaborative model should be conceptualized. Rather, they emerged as responses when other team members behaved in ways contrary to expectations. These responses often took the forms of frustration and anger.

Emerging Dilemmas

In the foregoing analysis, we have tried to take a low-inference, interpretive stance about the circumstances and processes of the CCC Project as they unfolded during the 12 month period. Here, we search for deeper meanings based both on experiences recounted thus far and on critical reflections about tensions, contradictions and incompatibilities between the theory and practice of collaborative inquiry. This search necessarily places us in a high-inference stance vis-a-vis the the project.

As the practice of collaborative inquiry came to be seen as increasingly problematic, it became clearer that the dilemmas (described below) stemmed from the clash of two very different epistemological stances on inquiry -- the more traditional research and development/technological intervention model versus the less traditional model of collaborative inquiry and participant responsibility for

initiating and sustaining innovation and change. The clash was exacerbated by the institutional contexts (schools and universities) compatible with the traditiona RD and D and quite out-of-sync with collaboration.

Consider, then, the following list of highly interrelated contrasts intended to illustrate some dilemmas that we see as having emerged from the collaborative inquiry project. These should not be viewed as clear-cut dichotomies; rather, they are really heuristics for guiding further study of the promise and pitfalls of collaborative inquiry.

1. Process (Means) vs. Product (Ends). Traditional R & D type approaches attempt to function according to a research agenda geared toward a predetermined set of deliverables. This has the effect of raising what appear to be clear expectations for what should occur during the course of the project. In the collaborative inquiry model, the process is an acknowledged and fundamental part of the "product." Although not devoid of initial expectations, what goes on during the course of the project is expected to be most important in shaping, modifying, and substantially changing expectations and perhaps even redirecting the project generally.

2. Goal-free vs. Goal-oriented. This is inherent to the process-product distinction but is worth restating explicitly. The "goal-free" notion is essentially borrowed from that used by Scriven (1972) in the context of evaluation and Clark (1980) in the context of organizational planning and development. The point is that even when those engaged in inquiry behave as though an objectives-based research agenda is guiding the process, the analysis of such inquiries suggest a

much more evolutionary and fluid process. In a collaborative inquiry, initial goals are partly heuristics for new ones.

3. Exploration vs. Confirmation. Only in the more tightly controlled, more narrowly focused experimental and correlational studies are initial hypotheses maintained through the course of study so that they may be rejected or "confirmed". In the exploratory mode, hypotheses are useful stimuli throughout the course of inquiry and help to direct and redirect the study.

4. Thinking vs. Doing. There is an unfortunate association between product or goal-oriented research and development and "getting something done." The ideas and processes of thoughtful dialogue, exploration of new ideas, and dialectical reasoning are often seen as "shooting the breeze," "jawing," "whistling in the wind" -- talk with no action. These ideas and processes are an inherent part of collaborative inquiry.

5. Long-term vs. Short-term "Payoff". Goal-directed, product-oriented research and development has the illusion of (and often the potential for) short-term payoff. Exploring ideas through collaborative inquiry is seen as (and often is) a long-term proposition.

6. Generalist vs. Specialist. When the technologically-oriented R & D paradigm is employed, people who understand it and know how to use it are employed also. Different activities require different talents: conceptual theorists, research designers, instrument developers, statisticians and psychometrists, computer programmers, technical writers, and so forth. Collaborative inquiry, by definition, involves more people in more phases of the entire project. Learning "on the job" often occurs for all staff -- researchers and practitioners alike.

7. Internal vs. External Motivation and Reward. When products are valued over processes, when attaining prespecified goals are more important than the means by which they (or new ones) might be reached, motivation and reward become linked to goal attainment and the organizational structures presumed to maximize goal attainment. The traditional organizational structure is hierarchical (see 8 below); reward is often based on the appraisal of visible products by "experts" (e.g., project supervisors, funding agencies, evaluators, etc). The following intrinsic sources of motivation and reward are problematic in (if not incompatible with) traditional R & D models: inquiry for the sake of inquiry; a sense of self-satisfaction and accomplishment as ideas are worked out through thoughtful reflection and action (with self and/or others); critique of one's own work and the satisfaction from making it better. The collaborative inquiry model highlights those internal sources of reward and provides a receptive context for collegial support and reinforcement.

8. Responsibility vs. Accountability. Closely related to the motivation and reward dilemma is the issue of how people are held accountable for their work. Traditional R & D models and their concomitant organizational structures hold people accountable by inventing evaluation procedures based upon ostensibly objective devices (rating forms, test scores, and the like). In collaborative inquiry, "evaluation" can be seen as the ongoing inquiry process itself. People become "accountable" to one another rather than to some arbitrary external criterion. Responsibility is a more reasonable term to characterize this view of "accountability" in the collaborative inquiry paradigm.

9. Trust vs. Working Relationships. To "get the job done" in a factory setting working relationships among employees need to, at minimum, make it possible for the intended product(s) to be produced and accounted for. We need more than working relationships in collaborative inquiry -- we need trust. We need trust in the form of being able to say without fear of some form of recrimination, "I need help," or "Can I help you?" We need a working climate within which people can shed defense mechanisms and not suffer the consequences as they engage as equal stakeholders in the exploration of ideas, practices, and human interests.

10. Communication vs. Conversation. Collaborative inquiry requires more than "shop talk", social politeness, and the routine meetings and conversations necessary to facilitate production. Collaboration requires real communication; and real communication is characterized first by trust as noted above. Within a trusting climate it becomes possible to (a) clarify and comprehend what is being said and (b) have systematic and rigorous dialogue about what is being said such that people have equal opportunity to enter the discourse, refute or call into question the discourse of others, express intentions, beliefs and values, and regulate the discourse (See Habermas, 1979).

11. Working Consensus vs. Line Authority. Getting two people to agree on difficult issues is usually problematic. Reaching consensus in a group is quite unrealistic. Traditional organizational structures invent a decision-making hierarchy of authority in line with the processes that are expected to produce desired outcomes. Thus we have project directors, assistant directors, program officers, budget managers, site coordinators, evaluators, support staff, and so forth,

with their own more or less limited arenas of decision-making. Given the equity-based model of trust and communication at the root of collaborative inquiry on the one hand, and the group behavior of human beings on the other, how is this democratic ideal obtained? It isn't. Instead, we approach "consensus" through a working consensus, that is, a majority decision with duly acknowledged dissenting views. A commitment to collaborate in inquiry, then, contains within it a commitment to concede to the power of the better argument (Habermas, 1979). This can only work, however, in a climate that is genuinely open to decisions as tentative and actions as the stimuli for renewing the inquiry. This leads directly to the last contrast:

12. Ambiguity vs. Closure. In a nutshell, traditional inquiry paradigms strive to minimize ambiguity and maximize closure. Complicated ideas such as the ways in which human beings react to themselves vis a vis others get operationalized and measures (e.g., paper and pencil questionnaires) and then reified into construct labels like "self concept," "alienation," "organizational climate," and so forth. The idiosyncrasies and exigencies of real-world research practices are glossed over in the struggle to conform to the predetermined research agenda. But inquiry by its very nature is tentative. The continual dialectic between understanding and ambiguity is the "staff of life" for collaborative inquiry. In collaborative inquiry, people must come to view their understandings as tentative but nevertheless viable bases for decision and action. Moreover, these understandings must be continually tested by experience and amenable to informed change. Indeed:

> Ambiguity is the glue that holds things together. It is the cushion that absorbs the blows of

> antagonists. It is the sponge that absorbs all. Without ambiguity settlement of dispute would likely be a matter of acrimonious surrender of the vanquished to the victor. With ambiguity there may be grounds for more amicable compromise . . . In the face of ambiguity, from which everything follows and so not one thing alone, and in the name of democracy, we must give up the notion of educational decision-making by synoptic overview. We must recognize, for example, that alternative synopses are compatible with ambiguous objectives. We are thus committed to a conception of the American educational enterprise where the pushes and pulls of partisan interests are advanced and defended, perhaps as they should be, in the name of the public interest. (Steinberg, 1968, pp. 238-240.)

So much for a dozen contrasts that come to mind as we juxtapose competing paradigms of inquiry within the context of our experience on the CCC project. These issues become dilemmas simply by attempting to put into practice a collaborative inquiry paradigm in a less than collaborative world -- a world of competing interests and motivations, beginning with our own, and extending to those of funding agencies, the participants themselves, and the organizations (schools and university) they work for and represent.

Admittedly, our discussion of these dilemmas has been brief and limited by the scope of this report. Nonetheless, it should be sufficient to characterize the basis of our post-project reflections on the problematic nature of collaborative inquiry. For example, in retrospect, we are no longer too surprised that, notwithstanding the principles and practice of collaborative inquiry, project staff experienced (and/or perceived) such problems as: unsatisfying feedback and reinforcement for tasks performed; inadequate leadership and directive advice; ambiguous role definitions; mixed messages in communications between researchers and practitioners; cliquishness

between different physical settings; and difficulty in ascertaining project objectives and expectations.

CONCLUDING REMARKS

As in any project, to be sure, a non-trivial portion of the variance in participant satisfaction can be accounted for in terms of the blunders of those in charge -- the "chief worriers." Yet it is our view that, as in the project described, a considerable portion of this variability is due to the paradigmatic clash of the collaborative inquiry model with real world exigencies and peoples' expectations conditioned to more traditional organizational structures and research and development practices.

So, do we conclude that the collaborative inquiry model is nice but not viable for furthering the understanding and improvement of educational practice? Of course not. In point of fact, we have probably exaggerated the problematic nature of our own experience by way of illustrating and explicating the emergent dilemmas. By and large, most project participants -- university- and school-based alike -- reported a professionally satisfying and personally rewarding experience in the project.

Our conclusion, therefore, is that the terrain of collaborative inquiry is rocky, bruised knees are to be expected, but braving the hazard is well worth the effort. Moreover, we suspect that making explicit these possible consequences of attempting to behave collaboratively can serve to raise the collective consciousness of participants and help head off some of the problems.

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